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CONFIDENTIAL 17 July 1957 Balloon Gen'l

MEMORANDUM FOR: Chief/SR-7

ATTENTION : [redacted] 25X1

SUBJECT : Information Pertaining to Hydrogen Generators and Compressors

The following information is from our files on hydrogen generators and compressors and is forwarded in accordance with your oral request of 16 July 1957.

Generators

1. Corps of Engineers - Methanol Steam Generator

A. Performance - 4000 cubic feet per hour (94%) of Hydrogen and 156 lbs. of liquid CO_2 per hour. Gas purity about 94%

B. Availability - To be determined (probably available)

C. Size - 42,000 lbs. Large trailer mounted requires M-52 tractor to move

D. Cost - $120,000 to reproduce-possibility of getting one for less should be investigated

E. Personnel to Operate - Should be run for several consecutive days - two men per shift - Mechanic type personnel with consulting service (possibly TBS [redacted] personnel) 25X1

F. Materials to Operate per 24 Hours

(1) Fuel Oil 360 gal.
Methanol 456 gal.
Water 31,300 gal.

Other chemicals: Monoethonolamine, Catalyst water treatment, acid, methyl orange cuprous chloride, Cardisorber 760 lbs.

(2) Total estimated cost of raw material per 24 hours (assuming water is free) $300.00

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(3) Availability - estimated as reasonably easy to obtain

G. Storage - large commercial type garage.

2. Corps of Engineers Catalytic Cracking of Hydrocarbons Generator

A. Performance - 1000 cubic feet per hour of Hydrogen gas purity about 9[illegible]%

B. Availability (to be determined - probably available)

C. Size - 42,000 lbs. (same as other)

D. Cost - $120,000 (same as other)
May be obtainable on loan basis - this will be checked.

E. Personnel to Operate - Same as before - 2 men per shift - should be run for several days. Mechanic type personnel with TSS [redacted] personnel to act as consultant in the event of serious difficulty. 25X1

F. Materials

(1) Fuel oil - 360 gal.
Diesel or jet fuel - 200 gal. (approx.)

Other chemicals not known at present but it is believed fewer are needed.

(2) Estimated cost per 24 hours - $300.00
(This is materials cost alone)

(3) Availability of materials is estimated at very good, enough so to offset the advantage of the higher rate of the methanol generator.

G. Storage - Same as other - large commerical type garage.

3. TSS - [redacted] Mobile Generator 25X1

A. Performance - 4000 cubic feet per hour of Hydrogenal - gas purity 75%-hydrogen [illegible]purity - nitrogen and ammonia

B. Availability - available now, should have routine tests run before shipping. If used with a compressor, this should also be tested - assume one month minimum time

C. Size - 2 ton panel truck (of the type used for milk delivery, etc.) total weight estimated at 3½ tons including truck

D. Cost - one now available at no cost to the project
estimated cost to reproduce - $20,000

E. Personnel to Operate - one mechanic type - extensive warm up and shut down time is not required. consulting service should be available to the operator.

F. Material to Operate - 88.88 lbs. of anyhydrous ammonia per hour - 2100 lbs. per 24 hours.
jet engine fuel or diesel oil - 6 gal/hour, 144 gal/24 hours
Cost of materials - availability - no problem foreseen

G. Storage - Same as any panel truck

Compressors

1. Worthington Type V4A3 - four cylinder, three stage

A. Performance - 14 cubic feet/min to 2000 Psi

B. Availability - commercially available, cost $2000.00

C. Power Source - requires 6-10 HP electric motor

D. Personnel to operate - generator operator can also handle the compressor

E. Size - shipping weight - 800 lbs.

2. Worthington compressor, next largest size rated at 38 CFM at 2000 Psi, costs $7000.00.

3. Information on the Corps of Engineers Compressor is not complete. Their smallest known unit weighs 7800 lbs., has its own diesel engine power source. Further information is being sought and will be forwarded without delay.

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Chief
TSS/Engineering Division

DD/P/TSS/ED

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